

Notice of Allowability

Application No.

10/001,997

Examiner

Hung H. Lam

Applicant(s)

SUZUKI ET AL.

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendments filed on 08/07/06.
2. ☒ The allowed claim(s) is/are 23,24,26,28,25,27,29,30,31,35,32,36,38,37,39 and ,40-51(the claims are renumbered as 1-27, respectively).
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892) | 5. <input type="checkbox"/> Notice of Informal Patent Application |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____. |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit
of Biological Material | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance |
| | 9. <input type="checkbox"/> Other _____. |

DETAILED ACTION

Response to Amendment

1. The amendments, filed on 08/07/06, have been entered and made of record. Claims 1-22 and 33-34 are cancelled.

Allowable Subject Matter

2. Claims 23-30 and 45-47 are allowed as set forth by the previous office action.
Claims 31, 32, 35-44 and 48-51 are allowed.

The following is an examiner's statement of reasons for allowance:

Regarding independent **claim 31** the prior art of record neither anticipates nor renders obvious, "a computer readable medium storing thereon a computer program comprising a set of instructions, when executed by a computer, the computer program to be used to process an image signal constituting a subject image captured at an image-capturing element, with the program comprising instructions to perform:

average value calculation processing in which pixel output averages are calculated for individual colors in each of a plurality of partition areas into which a light-receiving surface of the image-capturing element is divided based upon the image signal;

average ratio calculation processing in which a ratio of the pixel output average corresponding to another color to the pixel output average corresponding to a reference color is calculated for each partition area;

hue detection processing in which a hue of each partition area is detected based upon the ratio of the pixel output averages;

area extraction processing in which any partition area with a hue manifesting a frequency equal to or lower than a predetermined frequency value is extracted from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

white balance adjustment processing in which a white balance adjustment is performed based upon pixel outputs corresponding to individual colors from the extracted area.”

Regarding independent **claim 41** the prior art of record neither anticipates nor renders obvious, “an image signal processing device that processes an image signal constituting a subject image captured at an image-capturing element, comprising:

a hue calculating unit that calculates a hue of each of a plurality of partition areas based upon pixel outputs from the partition areas into which a light-receiving surface of the image-capturing element is divided;

an area extracting unit that extracts any area having a hue manifesting a frequency equal to or lower than a predetermined frequency value from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

a white balance adjustment unit that performs a white balance adjustment based upon pixel outputs corresponding to the individual colors from the extracted area, wherein the white balance adjustment is not based upon pixel outputs from any area that was not extracted by the area extracting unit.”

Regarding independent **claim 42** the prior art of record neither anticipates nor renders obvious, “a digital camera having:

an image signal processing device according to claim 41; and

a recording image-capturing element that outputs an image signal for recording the captured subject image into a recording medium, wherein:

an image signal to be used for white balance adjustment is the image signal output by the recording image-capturing element.”

Regarding independent **claim 43** the prior art of record neither anticipates nor renders obvious, “a digital camera having:

an image signal processing device according to claim 41;

a recording image-capturing element that outputs an image signal for recording the captured subject image into a recording medium; and

a photo metering image-capturing element that outputs a photo metering signal indicating a subject brightness level in each of photo metering areas into which a photographic field is divided, wherein:

an image signal to be used for white balance adjustment is the image signal output by the photo metering image-capturing element.”

Regarding independent **claim 44** the prior art of record neither anticipates nor renders obvious, “a computer readable medium storing thereon a computer program comprising a set of instructions, when executed by a computer, the computer program to be used to process an image signal constituting a subject image captured at an image-capturing element, with the program comprising instructions to perform:

hue calculation processing in which a hue of each of a plurality of partition areas is calculated based upon pixel outputs from the partition areas into which a light-receiving surface of the image-capturing element is divided;

area extraction processing in which any area manifesting a frequency equal to or lower than a predetermined frequency value is extracted from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

white balance adjustment processing in which white balance adjustment is performed based upon pixel outputs corresponding to individual colors from the extracted area, wherein the white balance adjustment is not based upon pixel outputs from any area that was not extracted by the area extraction processing.”

Regarding independent **claim 48** the prior art of record neither anticipates nor renders obvious, “a computer readable medium storing thereon a computer program comprising a set of instructions, when executed by a computer, the computer program to be used to process an

image signal constituting a subject image captured at an image-capturing element, with the program comprising instructions to perform:

average value calculation processing in which pixel output averages are calculated for individual colors in each of a plurality of partition areas into which a light-receiving surface of the image-capturing element is divided based upon the image signal;

average ratio calculation processing in which a ratio of the pixel output average corresponding to another color to the pixel output average corresponding to a reference color is calculated for each partition area;

hue detection processing in which a hue of each partition area is detected based upon the ratio of the pixel output averages;

area extraction processing in which any partition area with a hue manifesting a frequency equal to or lower than a predetermined frequency value is extracted from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

white balance gain calculation processing in which white balance gains are calculated based upon pixel outputs corresponding to individual colors from the extracted area.”

Regarding independent **claim 49** the prior art of record neither anticipates nor renders obvious, “ an image signal processing device that processes an image signal constituting a subject image captured at an image-capturing element, comprising:

a hue calculating unit that calculates a hue of each of a plurality of partition areas based upon pixel outputs from the partition areas into which a light-receiving surface of the image-capturing element is divided;

an area extracting unit that extracts any area having a hue manifesting a frequency equal to or lower than a predetermined frequency value from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

a white balance gain calculating unit that calculates white balance gains based upon pixel outputs corresponding to the individual colors from the extracted area, wherein the white balance gain is not based upon pixel outputs from any area that was not extracted by the area extracting unit.”

Regarding independent **claim 50** the prior art of record neither anticipates nor renders obvious, “ a digital camera having:

an image signal processing device according to claim 49;

a recording image-capturing element that outputs an image signal for recording the captured subject image into a recording medium; and

a photo metering image-capturing element that outputs a photo metering signal indicating a subject brightness level in each of photo metering areas into which a photographic field is divided, wherein:

an image signal to be used for calculation of a white balance gain is the image signal output by the photo metering image-capturing element.”

Regarding independent **claim 51** the prior art of record neither anticipates nor renders obvious, “ a computer readable medium storing thereon a computer program comprising a set of instructions, when executed by a computer, the computer program to be used to process an image signal constituting a subject image captured at an image-capturing element, with the program comprising instructions to perform:

hue calculation processing in which a hue of each of a plurality of partition areas is calculated based upon pixel outputs from the partition areas into which a light-receiving surface of the image-capturing element is divided;

area extraction processing in which any area manifesting a frequency equal to or lower than a predetermined frequency value is extracted from the plurality of partition areas based upon a hue frequency distribution among the plurality of partition areas; and

white balance gain calculation processing in which white balance gains are calculated based upon pixel outputs corresponding to individual colors from the extracted area, wherein the white balance gain is not based upon pixel outputs from any area that was not extracted by the area extraction processing.”

Regarding **claims 32 and 35-40**, the claims are allowed as being dependent of claims 31.

3. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

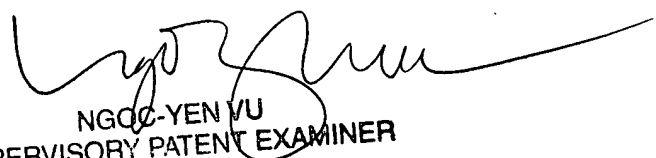
Conclusion

4. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance." Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hung H. Lam whose telephone number is 571-272-7367. The examiner can normally be reached on Monday - Friday 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGOC YEN VU can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

HL
08/25/06


NGOC-YEN VU
SUPERVISORY PATENT EXAMINER